

BUILDING 881

SCOPING MEETING

August 15, 2001



1/9

DOCUMENT CLASSIFICATION
REVIEW/ WAIVER PER
CLASSIFICATION OFFICE

ADMIN RECORD

B881-A-000008

OPERATING HISTORY AND PHYSICAL DESCRIPTION

Building 881, known as the Manufacturing and General Support Building, is a two-story structure with a basement. The building has two mezzanines, one on the first-story and another on the second-story. The second-story mezzanine is also referred to as the third floor. The building has no windows since most of the structure was built below grade. The building was originally constructed in 1953 and contains approximately 250,000 square-feet of floor space.

Building 881 was primarily a uranium production and stainless steel fabrication facility.

- The basement housed the old boiler equipment (most of which has been removed), process cooling water tanks, electrical equipment and ventilation ducts.
- Administrative functions such as payroll, accounting and computer operations currently occupy the southwest section of the first floor. The northwest section of the second floor housed utilities, maintenance, the casting furnaces, and the production machine shop. The northeast section contained building ventilation and utility systems, production areas and various analytical laboratories. Analytical laboratories, maintenance shops and offices are located in the southeast section. The center of the first floor on the west side housed the waste recovery operations with the caustic scrubber extending through to the second floor mezzanine.
- The first floor mezzanine contained engineering offices and maintenance storage.
- The southeast corner of the second floor housed the cafeteria. The western section of the building housed the laundry, research and support laboratories and offices. The eastern side of the second floor housed most of the production-related operations.
- An underground tunnel connects the northwest corner of Building 881 to the tunnel to the southwest basement corner of Building 883. The tunnel was originally used to transport enriched uranium parts and other material between the two buildings.
- The north section of the second floor mezzanine contained exhaust plenums and control systems. The west section contained offices and a brazing laboratory. The south section contained a fan room and supply air filter banks.

Two major modifications to Building 881 were performed. The first modification included an annex and a radiography vault built in 1956. The annex included a two-story "L" shaped addition around the northwest corner of the original structure and included an exhaust stack, additional uranium processing rooms and the tunnel to Building 883. This addition also included a radiography vault located on the second floor of the north east corner of the original structure and used X-ray equipment to determine the absence or presence of cracks, voids, and gaps in parts.

The second modification was a high-pressure vault, built in 1967, on the second floor near the center of the east side of the original structure. The high-pressure vault contained high-pressure hydraulic equipment for manipulating parts.

The supporting buildings included in the Building 881 Cluster are

Building 881C - Building 881 Cooling Tower

*Building 881F - Building 881 Filter Plenum

Building 881G - Emergency Generator Building

Building 881H- Electrical Equipment Building

Building 830 – Isolated Power Supply Building

Building 885 – Maintenance Paint / Oil storage Building

*Building 887 – Sewage and Process Waste Building

Building 890 – Old Cooling Tower Pump House

Building 890 pad – Pad remaining from the old Building 881 Cooling Tower

*Stack S1- Stack North of 881

*Stack S2 – Stack Northeast of 881

*Stack S3 – Southeast of 881

*These buildings in this characterization report only

The supporting exterior tanks associated with the Building 881 Cluster are

TK66 – Diesel Storage Tank (replaced Tank 002)

Tank 002 – Steel Fuel Tank East of 881G

Tank 029 – Helium Storage Tank East of 881

Much of Building 881's process history and the physical descriptions were obtained from the Building 881 Historical Release Report (EG&G, 1994), the DRAFT Safety Analysis Report (EG&G, 1992), and the Facility Safety Analysis (RMRS, 1998). Other sources of information were the Building WSRIC, Site Master List of RCRA Units, and the Site IHSS, PAC, and UBC databases.

PHYSICAL DESCRIPTION OF BUILDING 881

General Construction and Foundation

Building 881 is constructed primarily of reinforced concrete. There are a few interior walls of concrete block, gypsum board and transite board over steel studs. The construction details of Building 881 and the associated support structures are discussed in later sections.

The primary structural framing of the building is poured-in-place reinforced concrete columns and beams. Structural steel beam framing was used at two locations, in the center stairway and in the roof of the Building 881 Annex.

The main foundations of the building are individual spread footings of concrete for the interior columns and continuous footings of concrete for the exterior walls. The spread footings have a maximum size of 11-feet square by 2-1/2-feet thick and the minimum size of 4-feet square by 1-foot thick. The continuous footings vary from 10 to 16-inches thick.

Walls

All exterior walls of the building are reinforced concrete. The wall thickness varies from 8-inches to 16-inches thick.

The interior walls of the building are made of several types of materials. The elevator shaft, stairwells, and some of the rooms are constructed of reinforced concrete walls from 8 to 12-inches thick. Many interior walls are constructed of concrete block from 4 to 8-inches thick. Some walls are constructed of metal studs covered with gypsum board. Transite wallboard is suspected of being used in some walls.

Poured concrete walls and concrete block walls are frequently painted, and metal partitions have factory finishes. Restroom walls have glazed tile wainscoting.

Floors

The concrete slabs on grade vary in thickness from 6-inches to 12-inches thick with wire mesh reinforcement. The first floor is constructed of reinforced concrete slabs, 6-inches thick, supported by concrete beams. The second floor concrete slabs are of two designs, flat slabs and beam slabs. The second floor and mezzanines are constructed of 6-inch and 8-inch thick slabs. The Room 199 pit landings have metal floors of 3/8-inch thick steel plate.

The floors in most of the process areas were surfaced with stainless steel sheeting with welded seams to contain spills and facilitate decontamination.

The floor finish of most offices, restrooms, and hallways are either asphalt tile or asbestos tile. A few rooms have carpeting.

BUILDING 881 OPERATIONAL HISTORY

Historical Processes

Building 881 operations can be divided into three categories representing three distinct primary functions for the building.

- Enriched uranium manufacturing and recovery which occurred between 1953 and 1966,
- Stainless steel operations took place between 1966 and 1984 and,

- Recent activities that have taken place in the building since manufacturing operations were phased out. Recent activities include plant wide administrative, computer and analytical support.

Enriched Uranium Operations

Starting in 1953, Building 881 housed the plant's only enriched uranium components manufacturing and recovery operations.

The primary operations were divided into three areas:

- Fabrication support, which included the foundry (for casting of shapes and ingots), machining and inspection.
- Metal product support, which included recovery of relatively pure materials.
- Salvage support, which handled recovery of solutions and solid residues with relatively low uranium content.

In 1964, enriched uranium operations began phasing out of Building 881 when DOE adopted a single mission policy and decided to consolidate enriched uranium activities at Oak Ridge. In 1965, DOE announced that all enriched uranium work would be transferred to Oak Ridge. By 1966, most of the operations had ceased, the salvage and recovery processes being the last processes to be shut down.

Current Status

Building 881 currently houses various support and administrative functions. These functions include the following:

- Central Computer Facility. The central computer system for the RFETS site is located on the first floor of the building.
- Utilities. The utilities group in Building 881 provides building utilities for the entire Building 881 Cluster, including power supply, emergency power generation, chilled water supply and domestic water supply. A wide variety of routine chemicals are used, and wastes are generated, such as lubricating oil, light ballast's containing PCBs, and fluorescent light bulbs.
- Other administrative functions include the Chemical Standards Laboratory, Records Maintenance, and 800 Area Radiological Operations and Radiological Engineering.

Spills, Other Releases, and Related Contamination

Uranium process operation ended around 1966. Little documented spill/release and waste storage information exists since production operations occurred prior to establishment of RCRA reporting requirements. In addition, Building 881 used stainless steel sheeting on the floor in most of its process areas to reduce the spread of contamination during a spill and to aid in decontamination efforts.

Much of the removable contamination in Building 881 has already been removed or painted over. The building has numerous areas with some degree of past contamination (i.e., plutonium or uranium) in ducts, under floors, behind walls, in pipes, etc. Exact levels of contamination are not presently known and have not been surveyed.

Consent Order Areas

Consent order areas are rooms or cabinets that were determined during the chemical clean-out of Building 881 to be high risk due to high radiological and/or chemical contamination. Due to the high risk, CDPH&E agreed that these areas would be dealt with at a later date. In addition, these rooms, cabinets would not be entered without first notifying CDPH&E. Below is the list of consent order areas located in the Building 881 Facility, Work Control Package Procedure (WCPP) Appendix 4.

- 1 Room 15A (Contamination Area [CA])
- 2 Room 114A (CA)
- 3 Room 127A (Room in Be area) (CA)
- 4 Room 137 (cabinet is a CA in a Be area)
- 5 Room 233 (cabinet is a CA)

RCRA Regulated Units

Building 881 has several areas on the "Master List of RCRA Units." These areas are listed below. Building 881 and Building 887 are the only buildings in the Building 881 cluster with location identified on the Master List of RCRA Units.

Unit #	Building	Unit Description	Regulatory Status	Closure Status
26	881	Container Storage Rm 266B	No longer subject to RCRA	Closed in accordance with "Final Phase 1 RFI/RI Work plan for OU-15"
32	881	Cyanide Bench Scale Treatment Rm 131C	No longer subject to RCRA	Closed in accordance with "Final Phase 1 RFI/RI Work plan for OU-15"

881 3A	881	Electrochemical Chlorinating Process Rm245	Permitted Closed Permit Mod is pending	CLOSED BY REMOVAL, Modification Request 01-04, submitted to CDPHE 03/23/01) removes RCRA Unit 881 3A from the RFETS Permit
881 3B	881	Bench Scale Treatment Unit Rm 267	Permitted	ACTIVE, to be closed in accordance with the Closure Description Document for UV Oxidation Unit 881 3B (CDD covers UV oxidation process only) and with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97), (remaining processes within Unit 881 3B) UV oxidation process closed by removal Modification Request 01-04 (submitted to CDPHE 03/23/01) removes UV oxidation process from the RCRA permit
887 2A	887	Process waste Tank T-183	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)
887 2B	887	Process waste Tank T-184	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)

887 2C	887	Process waste Tank T-185	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)
887 2D	887	Process waste Tank T-802A	Active Permitted	Subject to daily inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)
887 2E	887	Process waste Tank T-802B	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)
887 2F	887	Process waste Tank T-802C	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)
887 2G	887	Process waste Tank T-802D	Permitted RCRA Stable	RCRA STABLE (00-RF-02076) approved by CDPHE 11/27/00, subject to quarterly inspections, to be closed in accordance with "Closure Plan for Interim Status Units at RFETS " to be closed in accordance with RCRA Part B Permit No CO-97-05-30-01, Part X (6/30/97)

BUILDING 881 FACILITY GROUP
REQUESTED LIFECYCLE BUDGET (THOUSANDS)

	02	03	04	Total
Landlord	1,900	1,200		3,100
Deactivation	3,500			3,500
Decommissioning				
Project Management	450	450	100	1,000
Support Services	450	200		650
P&E	1,500	400	100	2,000
Characterization	100			100
Dismantlement	2,500			2,500
Decontamination	3,000			3,000
Final Survey	1,607	1,000		2,607
Demolition		15,000		15,000
Total	15,007	18,250	200	33,457